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Colasidia wau, a new leleupidiine species from Papua New Guinea (Insecta, Coleoptera, Carabidae, Zuphiinae)

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***Colasidia wau*, a new leleupidiine species from Papua New Guinea (Insecta, Coleoptera, Carabidae, Zuphiinae).** - A new species of the leleupidiine genus *Colasidia* Basilewsky is described from Papua New Guinea: *C. wau* sp. n. The new species is most similar to *C. papua* Darlington, differing from it by even smaller eyes, narrower pronotum, and longer elytra. A key to all Australian-New Guinean species of *Colasidia* is provided.

Key-words: Coleoptera - Carabidae - Zuphiinae - Leleupidiini - *Colasidia* - new species - Papua New Guinea.

INTRODUCTION

Within a sample of specimens collected in central Papua New Guinea in 1992 by G. Cuccodoro of Geneva Museum, a single specimen of the genus *Colasidia* of the zuphiine tribe Leleupidiini was detected that is different from all described New Guinean species and, although it reminds *C. papua* Darlington in general shape and structure, it differs considerably from that species in body shape and size of eyes, and therefore is described as a new species. While working on the present paper, R. T. Bell (Burlington) sent me another *Colasidia* specimen for determination, collected by him in the same area in 1982, that turned out to belong to the same new species. As both specimens are males, the species identity is doubtless, although even in external structures the new species is different from all other known New Guinean *Colasidia*.

This paper is a supplement to my monograph of the Oriental-Australian species of the genus *Colasidia* (Baehr, 1997).

MATERIAL AND METHODS

Two specimens of the new species are available that were collected by different collectors but approximately at the same locality and at same altitude. The holotype was kindly presented by the collector to Zoologische Staatssammlung, München, and is presently located in the working collection of the author (CBM-ZSM). The paratype is in Muséum d'histoire naturelle, Genève (MHNG).

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For dissection of the male genitalia the specimens were soaked in a wet jar for one night, the genitalia were then cleaned for a short while in hot 4% KOH. For the description normal taxonomic methods were used. The description follows the style of my synoptic paper of the Oriental-Australian *Colasidia* (Baehr, 1997).

The habitus photograph was obtained using SPOT Advanced, version for Windows 3.5, and subsequently was worked using MS Corel Photo Paint 10.

Measurements were taken using a stereo microscope with an ocular micrometer. Length has been measured from apex of labrum to apex of elytra. Length of pronotum was measured along midline, width of base of pronotum at the extreme tips of the basal angles. Length of head was taken from apex of labrum to anterior border of "neck", length of orbit was likewise measured to anterior margin of "neck".

Colasidia Basilewsky, 1954

For information about taxonomy and distribution of the genus *Colasidia* see Baehr (1997: 613). From New Guinea four species were recorded so far: *C. madang* Darlington, *C. papua* Darlington, *C. kokodae* Baehr, and *C. garainae* Baehr (Darlington, 1971; Baehr, 1991, 1997, 2000a). Surprisingly, no *Colasidia* has been recorded from Irian Jaya so far, and even the records from Papua New Guinea are few and from a rather restricted range in the central part. Probably, this is mainly due to absolutely inadequate sampling of these litter- or even soil inhabiting tiny flightless beetles that are probably best sampled by sieving or Berlese extraction of litter and soil. Therefore, it is not too surprising, that one specimen of the new species was collected by staff of the Geneva Museum who is well known for its very successful sampling of litter and soil inhabiting tiny insects.

Almost all *Colasidia* from New Guinea (and Australia) are known from single specimens only which further demonstrates the rarity of these beetles and/or the little collecting efforts that were made. I suspect, however, that in New Guinea at least, distribution of these beetles is rather scattered, and that it would need enormous efforts to get a better picture of species inventory and distribution.

Colasidia wau sp. n. Figs 1, 2

Type material: Holotype: ♂, PAPUA NEW GUINEA Wau-Mt. Misim March 15, 1982 Coll. R. T. Bell / 1400 m /under stone / *Colasidia* nr. *madang* (CBM-ZSM).

Paratype: 1 ♂, PAPUA NG: Morobe above Wau 1450m, 21.V.1992 G. Cuccodoro #5b (MHNG)

Diagnosis: Medium sized, fairly elongate, piceous species, characterized by elongate, posteriorly markedly rounded head with fairly small eyes, rather elongate elytra with convex apical margin, and rather coarse and sparse, regularly arranged puncturation and pilosity; further distinguished from related species by the short, compact aedeagus having a moderately elongate, slightly upturned apex, and by presence of an elongate, folded sclerite in the internal sac.

DESCRIPTION

Measurements: Length: 4.75-4.80 mm; width: 1.60-1.62 mm. Ratios. Length/ width of head: 1.64-1.65; length orbit/eye: 3.9-4.1; length/width of pronotum: 1.16-

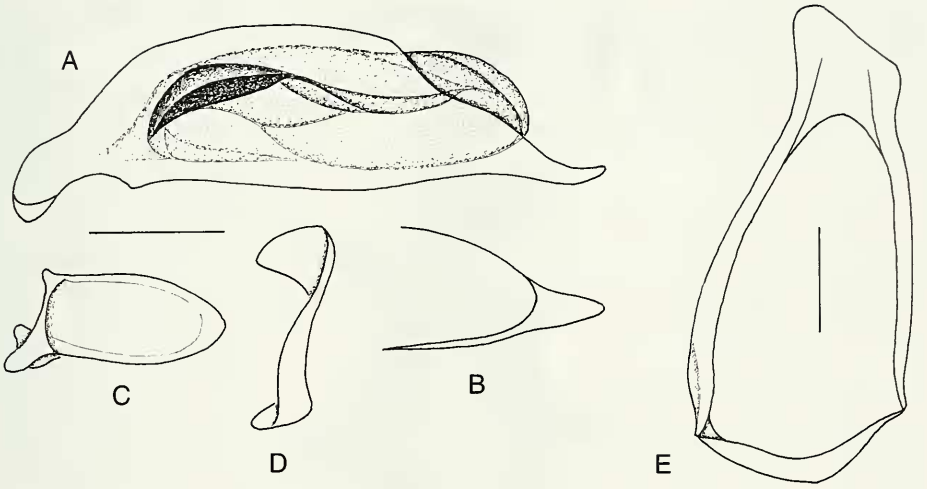

FIG. 1
Colasidia wau sp. n. Male genitalia: A) aedeagus (left side), B) shape of apex (from below), C) left and D) right parameres, E) genital ring. Scales: 0.25 mm.

1.22; width widest part/base of pronotum: 1.54-1.61; width pronotum/head: 1.21-1.30; length/width of elytra: 1.54-1.55; width elytra/pronotum: 1.80-1.88.

Colour: More or less dark piceous, suture of elytra very narrowly reddish. Labrum, palpi, legs, and antennae somewhat lighter, dark yellowish to light brown.

Head: Rather elongate, very slightly widened behind eyes, widest far away from base, orbits posteriorly very widely rounded. Clypeus and frons in middle slightly raised, frons not grooved. Eyes small, laterally barely projecting, length only about 1/4 of orbit length. Surface above and behind eye with a narrow, deep groove. Clypeus anteriorly faintly concave, lateral angles (above base of antenna) barely projecting. Clypeal suture laterally with shallow grooves. Labrum anteriorly rather excised, 6-setose, inner 4 setae slightly shorter than outer ones, lateral margin densely pilose. Mandibles short. Mentum with triangular, at apex faintly excised tooth. Labium truncate. Maxillary palpus moderately elongate, apex obtusely rounded. Terminal segment of labial palpus large and very elongate. Antenna very short, barely attaining anterior third of pronotum. Median antennomeres >1.5 x as wide as long, 3rd antennomere c. 2/3 as long as 1st, c. 1.5 x as long as 2nd antennomere. Surface without microreticulation, highly glossy. Puncturation rather coarse, moderately dense, diameter of punctures slightly wider than distance between punctures. Pilosity moderately dense, rather elongate, moderately erect, inclined anteriorly. Both supraorbital setae elongate, fairly well distinguished from pilosity, posterior supraorbital setae situated far behind eye.

Pronotum: Rather elongate, cordiform, anteriorly considerably widened, slightly longer than wide, considerably wider than head, widest in anterior third. Upper surface rather convex, faintly sulcate along median line. Lateral margin in anterior two thirds strongly convex, in front of posterior angles deeply but somewhat irregularly sinuate, basal third almost straight. Apex wide, faintly excised, anterior angles convex,

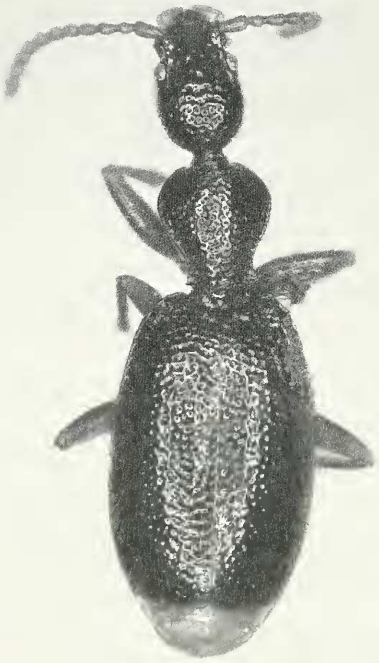

FIG. 2
Colasidia wau sp. n. Paratype, habitus. Length: 4.8 mm.

barely projecting. Base rather narrow, laterally angulately excised, basal angles projecting as sharp, small denticles. Lateral margin slightly raised, with distinct border line, but without distinct marginal channel. Median line distinct, though but faintly impressed. Prebasal grooves deep. Both marginal setae very elongate, anterior seta situated slightly behind anterior fourth of pronotum, posterior seta situated right on basal angle. Surface without microreticulation, highly glossy, with moderately dense, very coarse puncturation. Diameter of punctures wider than distance between them. Pilosity fairly dense, elongate, hirsute, irregularly inclined, rather erect.

Elytra: Rather elongate and but moderately wide, laterally evenly but gently curved, widest slightly behind middle, upper surface moderately convex. Intervals not raised. Humeri wide, rather projecting, rounded off. Apex wide, gently convex, slightly redressed to suture. Striae rather regularly marked by rows of punctures, puncturation moderately sparse, very coarse, rather regularly arranged to longitudinal rows. Diameter of punctures considerably wider than distance between them. Fixed setae in third interval very difficult to recognize within the coarse puncturation. Series of marginal pores extremely difficult to detect when setae broken, apparently consisting of 8 basal, 3 postmedian, 6 apical pores, and 1 pore at apex of 3rd stria. Setae very elongate. Surface without microreticulation, highly glossy. Pilosity rather sparse, elongate, hirsute, rather regular, inclined posteriorly, rather depressed.

Male genitalia: Genital ring fairly narrow, irregularly triangular and rather asymmetric, basal part short, apical plate very wide, oblique. Aedeagus rather short, with moderately elongate, rather narrow, slightly upturned apex. Lower surface very gently bisinuate. Internal sac in middle with an elongate, folded sclerite. Both parameres fairly short, of very different size and shape, left paramere rather parallel, with widely rounded apex.

Female genitalia: Unknown.

Variation: Apart from slightly wider pronotum in the paratype, very little variation noted.

Etymology: The name refers to the locality where the new species was detected.

Distribution: Central eastern Papua New Guinea. Known only from the immediate vicinity of Wau.

Collecting circumstances: Holotype collected "under stone" at 1400 m, paratype sampled by sieving and Winkler extraction of rotting trunk and vegetational debris in mountain rain forest, at 1450 m. Like the other New Guinean species of the genus *Colasidia*, this is a ground living beetle of the rain forest litter that occurs at median altitude in the lower level of the montane rain forest zone.

Key to species of *Colasidia* of New Guinea and Australia

To facilitate identification of the new species the most recent key to the recorded Australian-New Guinean species of *Colasidia* (Baehr, 2000a) is revised here. For the benefit of the user some figures from previous papers on the subject are mentioned in this key: **B00**: Baehr, 2000a; **B87**: Baehr, 1987; **B91**: Baehr, 1991.

1. Head about parallel, or wider across eyes than across orbits; base of head usually considerably rounded (doubtful specimens under both couplets) 2
- Head decidedly wider at posterior angles or across orbits than across eyes; base of head less rounded, more square 4
2. Head short, eyes very large, ratio of distance from orbit to neck/eye length <1.5; basal angles of head very widely rounded (**B91** fig. 6); puncturation of elytra irregular, rather confused; odd intervals raised in anterior half; aedeagus unknown. Kokoda, central Papua Peninsula, eastern Papua New Guinea . . . . . *kokodae* Baehr
- Head longer, eyes smaller, ratio of distance from orbit to neck/eye length >3 ; basal angles of head less widely rounded; puncturation of elytra in regular rows; intervals not markedly raised 3
3. Eyes larger, ratio of distance from orbit to neck/eye length c. 3; prothorax shorter, ratio length/width c. 1.10; prothorax less wide in comparison to head, ratio width of prothorax/width of head c. 1.16; elytra shorter and wider, ratio length/width c. 1.50; aedeagus unknown. Dobodura, central Papua Peninsula, eastern Papua New Guinea . . . . . *papua* Darlington
- Eyes smaller, ratio of distance from orbit to neck/eye length c. 4; prothorax longer, ratio length/width >1.16; prothorax wider in comparison

to head, ratio width of prothorax/width of head >1.20; elytra longer and narrower, ratio length/width >1.54; aedeagus short, rather compact, with moderately elongate, faintly upturned apex (Fig. 1). Vicinity of Wau, eastern central Papua New Guinea ..... *wau* sp. n.

4. Eyes very small, ratio of distance from orbit to neck/eye length >5; head very elongate, markedly triangular (**B87** fig. 1). Northeastern Queensland, Australia ..... *monteithi* Baehr

- Eyes larger, ratio of distance from orbit to neck/eye length <4.5; head shorter, usually less markedly triangular. New Guinea 5

5. Pronotum shorter and wider, ratio length/width c. 1.05; elytra shorter and wider, less depressed, ratio width of elytra/width of prothorax >2.05, ratio length/width of elytra c. 1.40; aedeagus unknown. Damanti, Huon Peninsula, northern Papua New Guinea ..... *madang* Darlington

- Pronotum longer and narrower, ratio length/width >1.12; elytra longer and narrower, more depressed, ratio width of elytra/width of prothorax <1.90, ratio length/width of elytra >1.48; aedeagus see fig. 1, **B00** fig. 1. Distribution different 6

6. Smaller species, length <4.35 mm; head shorter and wider, ratio length/width <1.5; elytra shorter and wider, ratio length/width <1.51; aedeagus elongate, with elongate, at tip very slightly upturned apex (**B00** fig. 1). Garaina, northwestern Papua Peninsula, eastern Papua New Guinea ..... *garainae* Baehr

- Larger species, length >4.75 mm; head longer and narrower, ratio length/width >1.64; elytra longer and narrower, ratio length/width >1.54; aedeagus short, compact, with moderately elongate apex (Fig. 1). Vicinity of Wau, eastern central Papua New Guinea ..... *wau* sp. n.

Remarks

Even when sampling of these tiny, litter inhabiting beetles is difficult and probably has been conducted quite inadequately in New Guinea so far, the absolute lack of any record from the western half of this island (Irian Jaya) is still enigmatic, because collectors like A. Riedel who conducted extensive sieving and Berlese extraction samplings in Irian Jaya, failed to find any specimens (see Baehr, 2000a). Therefore, it is uncertain, whether the western part of New Guinea represents one of the quite surprising distribution gaps within the extended range of Leleupidiini in the Oriental-Australian region, and whether Leleupidiini still escaped the attention of collectors in this region.

When the leleupidiine fauna of this large island will be better explored, this question will be asked again, in combination with the questions, why not a single *Colasidia* has been ever collected in Java, the Lesser Sunda Islands, Sulawesi, and the Moluccas, whereas they seem to be quite speciose in Malaysia, Sumatra, (northern) Borneo, and Papua New Guinea, and one species even occurs in northeastern Australia. Then, probably the very complex paleogeographic history of New Guinea should be considered for explanation of the curious distribution pattern of the tribe on this large island.

At present, we only can state that a rather limited area in central eastern Papua New Guinea is the single place in New Guinea where Leleupidiini have been recorded so far, and moreover, although being rare in terms of specimens, they are nevertheless quite speciose there. As in other regions where Leleupidiini occur, the species apparently occupy extremely restricted ranges, which is not surprising in view of their inability for flight and the rugged montane landscape of this island, where the ranges of neighbouring species of Leleupidiini usually are separated by deep valleys. As a consequence, the number of species still to be detected in New Guinea likely might be considerably augmented in future, in the same manner, as it has been demonstrated for other flightless, montane New Guinean carabid beetles (Baehr, 1995, 1999, 2000b, 2001a, 2001b).

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